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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/752,955	01/07/2004	Gopal Ramachandran	12597-35 (2552)	4429
7617	7590	07/25/2005	EXAMINER	
BRUZGA & ASSOCIATES 11 BROADWAY, STE 400 NEW YORK, NY 10004			SEVER, ANDREW T	
			ART UNIT	PAPER NUMBER
			2851	

DATE MAILED: 07/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/752,955	RAMACHANDRAN ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Andrew T. Sever	2851	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 April 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) 13-15 and 31-33 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12, 16-30 and 34-38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/2004 and 2/2005</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of species VII (claims 1-12, 16-20, 21-30, and 34-38) in the reply filed on 4/25/2005 is acknowledged. The traversal is on the ground(s) that all claims are dependent on generic claims and there is no burden for the examiner to search all of the species for that reason. This is not found persuasive because during prosecution the generic claims have the potential to be amended to a species-specific claims and accordingly it would be premature to examine all claims based on the generic independent claims, unless applicant specifically and clearly states on the record that the un-elected claims are obvious variants of the elected claims.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 13-15 and 31-33 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 4/25/2005.

*Drawings*

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: figure 4a part 33.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The figure has two part 35s, and it is assumed that one should be the specified part 33.

4. The drawings are objected to because in figure 14a the projection system is labeled 400 while in paragraph 106 of the specification it is stated that it should be labeled 300. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and

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appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

5. Figures 3A, 3B, 4A, 4B, and 4C should be designated by a legend such as "--Prior Art--" because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Specification*

6. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 6, and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Hiller et al. (US 6,233,024.)

Hiller teaches in figure 4 an off-axis projection system for displaying an optical image on a display surface based on input image data, comprising:

(a) An image-processing unit for receiving the input image data and generating distortion-compensated image data (see column 2 lines 56-67);

(b) A projection light engine (1) coupled to the image processing unit for receiving the distortion-compensated image data and projecting a distortion-compensated optical image that corresponds to the distortion-compensated image data; and,

(c) An optical reflection assembly (3 also see figure 6 which teaches more than one mirror) coupled to the projection light engine, said optical reflection assembly comprising at least one curved mirror (3 is curved in figure 4), said curved mirror being positioned in the optical path of the distortion-compensated optical image emerging from a projection lens for producing a displayed optical image with reduced distortion on the display surface;

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Wherein, said image processing unit is adapted to distortion-compensate the optical image represented by the input image data such that when said distortion-compensated optical image is projected through the projection light engine and reflected off the optical reflection assembly, the optical and geometric distortions associated with said projection light engine and the optical reflection assembly are substantially eliminated in the displayed optical image (again see column 2 lines 56-67.)

*With regards to applicant's claim 6:*

This is what image processors primarily do (taking the image data and putting it in a form usable by the projection light engine.)

*With regards to applicant's claim 21:*

See above wherein the method of using the projection system of Hiller is inherent.

(MPEP 2112.02).

*Claim Rejections - 35 USC § 103*

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 2-4, 7-12, 16, 22-30, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiller et al. as applied to claims 1, 6, and 21 above, and further in view of Sunaga (US 2002/0008853.)

As described in more detail above, Hiller teaches an off-axis projection system which among other things comprises a curved mirror. Hiller does not teach that projection system includes a curved mirror that is aspherical rotationally non-symmetric. Sunaga teaches such a mirror in paragraphs 16-19 and in figure 7, which clearly shows a concave and convex mirror R4, which meets applicant's claim language. Sunaga teaches that



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projection systems of the design of Hiller are difficult to aberration correct and when the correction is made the reflecting optical system tends not to be bright (see paragraph 13 for example). Accordingly since the projection system of Sunaga does not suffer from the deficiencies, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the reflective projection system of Sunaga in the rear-projection system which utilizes an off-axis projection system as taught by Hiller.

*With regards to applicant's claim 3:*

See figure 7.

*With regards to applicant's claim 4:*

See paragraph 136 of Sunaga, which teaches the addition of a lens to the reflective projection system of Sunaga.

*With regards to applicant's claim 7:*

Hiller includes a light generator (1), a display device (the projection lens or round part of the box forming the light generator, and projection optics (mirrors 3 in view of Sunaga).

*With regards to applicant's claim 8:*

The lens of Sunaga is before the reflective portion.

*With regards to applicant's claim 9:*

Both systems (Hiller and Sunaga) are off-axis for purposes of improving MTF.

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*With regards to applicant's claim 10:*

See above.

*With regards to applicant's claim 11:*

See paragraph 135, which details the contents of light generator.

*With regards to applicant's claim 12:*

See column 2 lines 56-67 of Hiller, which teaches that the micro-display device is caused to display an image that it is compensated for keystone and other spatial distortions.

*With regards to applicant's claim 16:*

Both Hiller and Sunaga teach rear-projection systems.

*With regards to applicant's claims 22-30, and 34:*

See above wherein the method of using the projection system of Hiller in view of Sunaga is obvious.

12. Claim 5, 17, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiller et al. as applied to claims 1, 6, and 21 above, and further in view of Suzuki et al. (US 2004/0046944.)

As described in more detail above Hiller teaches a projection system and associated method, which among other things includes a curved mirror. Hiller, however,

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does not teach a lens that is an aspherical rotationally non-symmetric lens. Suzuki teaches in figure 1 a projection optical system including a mirror (16) and a lens (15). Suzuki teaches in paragraphs 22-26 that the lens is an aspherical lens, which is designed to cancel the curvature of field of the reflecting part. Accordingly since it is desirable to eliminate such aberrations it would have been obvious to include the lens of Suzuki in the projector of Hiller

*With regards to applicant's claims 17 and 35:*

Suzuki teaches in paragraph 20 that the curved mirror can be replaced by a Fresnel mirror, this allows for a cheaper and easier to manufacture mirror and accordingly it would have been obvious to use a Fresnel mirror for the curved mirror of Suzuki.

13. Claims 18-20 and 36-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiller et al. as applied to claims 1, 6, and 21 above, and further in view of Nishizawa (US 2004/0032982.)

As described in more detail above Hiller teaches a projection system which among other things includes an image processing unit. Hiller does not specifically teach what the image-processing unit comprises of. Nishizawa teaches in paragraphs 12-14 that it is beneficial for the image processing unit to include a luminance correction state which individually processes different spectral pass bands as claimed in applicant's claim 19, 20, 37, and 38. Nishizawa states that by making these corrections the unnatural image displayed by the prior art can be corrected for. Accordingly it would have been

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obvious to one of ordinary skill in the art at the time the invention was made to include the luminance correction of Nishizawa in the image-processing unit of Hiller.

### *Conclusion*

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

US 6,896,375 to Peterson et al. teaches in figure 2 curved reflective projection system and in figure 4 the use of a Fresnel mirror.

US 5,477,394 to Shibasaki teaches in figure 5 a projection apparatus having multiple curved mirrors.

US 2003/0231261 to Bassi et al. contains much of the subject matter of the present application; see figures 10A and 10B for example.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T. Sever whose telephone number is 571-272-2128. The examiner can normally be reached on 9:30-6:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on 571-272-2258. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AS

  
**JUDY NGUYEN**  
**SUPERVISORY PATENT EXAMINER**